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# MUSEUM STORIES FOR CHILDREN

*Presented by*

*The James Nelson and Anna Louise Raymond Foundation  
for Public School and Children's Lectures*

FIELD MUSEUM OF  
NATURAL HISTORY



Series XXVII, Number 1

October 3, 1936

93774

FIELD MUSEUM OF NATURAL HISTORY

Roosevelt Road and Lake Michigan

CHICAGO

## NORTH AMERICAN INDIAN BEADS

The North American Indians have passed many arts on to us and beadwork is one of the finest. Any number of primitive people have used beads for ornamental purposes, but no people have produced as fine beadwork as have the North American Indians.

There is great variety in Indian beadwork. Some designs are simple while others are wonderful and intricate in pattern. Most people look only long enough to marvel a bit at the skill and patience of the Indian women who could sew or weave together these sparkling glass beads.

There is far more than just perfection of design and mere pictures in the beadwork. There are the thoughts and feelings of an Indian woman worked into that beaded object. Perhaps you see only a deer, but the deer meant food and life to the Indian.

The Indians could not explain well their ideas of nature and of the Great Spirit but they worshiped nature and all its parts—the animals, trees and flowers. These things, along with their thoughts and legends, were expressed best in their arts. If you should look at a Sioux Indian object and find the storm bird pictured there, it is not just a bird—it refers to one of their legends. "The storm bird of the Sioux dwells in the upper air, so high that we cannot see it with our eyes. It carries in its beak a lake of fresh water. When it winks its eye, there is lightning. When it flaps its wings we hear thunder and when it shakes its plumage the rain descends."

The Indian beads have not always been the same. Before the white man came to this country the Indians had no glass beads; they made their own from shells, seeds, teeth, claws and bones of animals or birds. These earliest beads were not woven into such intricate designs—they were strung together into necklaces or sewed onto articles of clothing. However, the Indians spent much time, thought and skill in shaping and drilling these shells, seeds or bits of wood and bone into beads. They valued their own native beads as personal ornaments.

Gradually, perhaps, the Indians began to admire different kinds of beads made by neighboring tribes and a system of trade was established. For instance, an Indian might trade a deer for a valuable string of beads. Finally, certain shell beads were used for trade and were spoken of as "Indian money" or "wampum."

These wampum beads were either white or dark purple in color and were strung or woven into belts and beads. Thus, they could

be used for personal adornment and at the same time had definite value. Among the Iroquois Indians the value of wampum was accepted as six white or three purple beads for a penny. These beads became so important that the Dutch and English people began to manufacture them for trade with the Indians. No treaty was complete without the exchange of wampum belts. By varying the arrangement of the white and purple beads in a belt, different meanings were portrayed. Gradually each tribe accumulated a number of treaty belts and one Indian was appointed as the keeper of the wampum belts. It was his duty and privilege to interpret and explain the legends woven into the belts.

After the white people came, the Indians began to use glass beads for trade; these beads became more and more popular and finally took the place of the native Indian beads. The manufacture of wampum ceased about the beginning of the nineteenth century and almost the entire bead industry centered around the use of glass beads. However, although the glass beads were introduced from Europe, the designs were original with the Indians—the same feelings and legends were worked into this more recent bead art.

The Woodland Indian women inclined more to gay, realistic floral designs while the Plains women chose brilliant beads and wove them into gorgeous, geometric patterns. Even the geometric figures had meanings. For instance, look at the pale green dress in Hall 5, Case 5. The green color stands for youth; the beaded squares represent people and years; the beaded lines on the shoulders and waist symbolize beauty and the fringes represent the sun's rays.

Above all, the Indian women worked endless hours weaving and sewing these tiny beads into legends and patterns because it was a joy to create something beautiful.

MIRIAM WOOD, Guide-lecturer

Note: The finest Indian beads and beadwork may be found among the Woodland Indian exhibits in Hall 4 and the Plains Indian exhibits in Hall 5. Indian wampum may be seen in Hall 4, Case 2.

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It is free to adults on Thursdays, Saturdays, and Sundays.

STEPHEN C. SIMMS, Director

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*Presented by*

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FIELD MUSEUM OF  
NATURAL HISTORY



Series XXVII, Number 2

October 10, 1936

FIELD MUSEUM OF NATURAL HISTORY

Roosevelt Road and Lake Michigan

CHICAGO

## CORAL GARDENS

In the clear waters of the warm seas are many strange plants and animals. The latter often appear like gardens of great variety and beauty. Corals, sea feathers, sea fans and sea whips—all formed by animals known as polyps.

The coral polyp is very tiny and nearly transparent. Colonies increase by buds or divisions from the parent polyp, or at times, by free-swimming young that form new colonies. They finally settle down on a ledge of rock or onto the floor of the sea, and immediately begin to build a stony base. From this rise partitions or walls. The base and walls together form the skeleton or home of the coral polyp. The stony skeleton is what is commonly called "coral."

Some coral animals work singly and alone, but most of them work in groups and are closely connected. Coral reefs, atolls and little islands are made by those that work together. Corals that grow singly often develop into shapes like large mushrooms, or other plants.

Around the mouth of the coral polyps are snake-like fingers called "tentacles" that reach out into the water for food. These and the hair-like points are often brightly colored with rose, pink, orange, green, blue or purple. Thus a coral garden is apt to be very colorful. Sometimes, yellow and brown plants grow among the corals and add their bit. A group of dome-shaped cup corals rising close together like giant mushrooms may be a soft green with a rosy glow over their tops; a lettuce coral may spread out in the sunshine that filters down through the water and look like a bouquet of green and lavender blossoms; or elkhorn corals, branching out like antlers, may grow like a tree in the deep sea garden. The brain corals grow close to the rocky ledges. Between the ridges of the dome-shaped head are valleys filled with the green tentacles of the hungry polyps living there.

The floor of the sea garden is often filled with the golden heads of pore corals and yellow-tipped finger corals, while brush corals fill in the spaces between and offer good hiding-places to the brightly colored fishes that play hide-and-seek through the lovely garden.

Most corals have no color in the skeleton itself, and when brought up out of the water, after the polyps themselves are dead and the tissues covering the skeleton have disappeared, are disappointing. However, there are two exceptions. There is a red coral which grows in the Mediterranean and Japanese seas that has long been treasured

for good luck pieces and for jewelry. This coral is often called "precious coral." Also, there is a black coral found in the Persian Gulf which is used in India.

Corals lived in the warm seas long before back-boned animals lived on the land. Reefs made by them were in time exposed to wind and washing waters. These actions wore down the coral bit by bit, and the tiny particles sank to the bottom of the sea and became hard-packed limestone. In the limestone of the Chicago region may be seen many of the fossil corals that lived in the warm sea that once covered this part of our land.

These interesting polyps no longer grow in our area, and there is only one kind that grows as far north as Massachusetts. But there are many kinds of corals along the southern Atlantic coast of our country. They are chiefly white and of little value except for the making of roads.

No coral reefs are found along the Pacific coast of North America, probably because the shore line drops so suddenly into the sea. This means no rocky ledges are left near enough to the surface of the water for corals to grow there.

Closely related to and associated with the corals which grow best at a depth of from one hundred to one hundred and fifty feet are the fragile sea fans, sea whips and sea feathers. They too are made by polyps, but of a "chitinous" or horny material cemented with limestone. They wave gracefully back and forth when in the moving water, but become rigid when brought out of it. Some of them are beautifully colored and add more color to the deep sea gardens.

LEOTA G. THOMAS, Guide-lecturer

Note: In Hall 38 are many fossil corals. In the Main Hall and in Hall 18 may be seen many cases showing the various kinds of corals, the brightly colored sea fans, sea whips and sea feathers that live in the warm seas of today.

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STEPHEN C. SIMMS, Director



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FIELD MUSEUM OF  
NATURAL HISTORY



Series XXVII, Number 3

October 17, 1936

FIELD MUSEUM OF NATURAL HISTORY

Roosevelt Road and Lake Michigan

CHICAGO

## THE CACTUS FAMILY

Many kinds of cactus are now grown in countries far distant from their native homes. All came originally from the Americas.

These native western world inhabitants are among the strangest of all plants. The white man first became acquainted with those that grew on deserts and thought for a long time that all cacti were plants of dry, hot sands. The majority do prefer desert conditions, but there are others which like the treetops.

In the rain forests of Panama, one needs to be a good climber to find the cacti hidden among the upper branches. Some have handsome red and white flowers; some form masses several feet across. One kind has long, slender stems with tiny flowers and tiny white berries. The birds are fond of these fruits and carry the gummy seeds from tree to tree. There they lodge in cracks in the bark and start new plants. Our beautiful Christmas Cactus grows on trees, as do some of the sweet-smelling night-blooming kinds. Cacti which grow in the trees are called "epiphytes."

Perhaps, the best known character of the cactus family is its spines. Many people think the spines are the leaves of the cactus plants. There is one kind of cactus found in the tropics which does have flat, broad leaves which are kept, but most cacti lose their little fat leaves before the leaves are many days old. Then the little cushions from which the leaves grew, send forth the spines and barbs that make some cacti so unpleasant to handle. Not all cacti have this armor. Some of the epiphytes are soft and velvety and may be handled with ease.

The work of leaves is done by the stems. These are divided into "slabs" or "joints," and the sections may be tall and slender and round like candles, or flat and broad like pancakes, or twisted and sharply cornered. All have special devices for absorbing lots of water during the rainy seasons and for storing it for the benefit of the plants when dry days come. The famous barrel cactus of the southwest can store up gallons of water. When the top of a plant is cut and the pulp mashed and drained, a cool liquid is obtained which has saved many a desert traveler from dying of thirst. The pulp of this cactus is made into a delicious candy which tastes much like candied pineapple.

Although not in the desert area, Chicago has its cactus. On the dunes and exposed rocks, we frequently see the prickly pear cactus. It is an unfriendly little fellow when the fruits are green, but when ripe, the spines can be brushed off easily and the fruits have a pleasant flavor.

One of the prickly pear cacti growing in New Mexico has slabs covered with very slender spines that are long and soft like hair. Bees visit its fine yellow blossoms. When the insect enters a newly-opened flower, the bloom presses against the body of its visitor and sprinkles it with yellow pollen. Thus the bee carries the precious golden pollen to the next flower it visits. All cacti are not so fortunate. The gorgeous night-blooming *Cereus* has no insect visitor, and the brown bat searching for food in the flower, also makes the exchange of pollen that is so necessary.

While many cacti are weird, fantastic plants with no apparent use except to decorate the landscape, torment the traveler or irritate the cattlemen, others have a real value. The Indians use cacti fences to keep wild animals from their gardens; certain kinds are planted for their fruits. These are dried, preserved, or made into a syrup which can be boiled down into sugar. Others provide juices for drinks. In some areas cactus fruits are packed in boxes and shipped to large cities. One of the hedge cacti has fruits with a flavor like strawberries, and the "Tunas" are delicious. Young, tender Tuna slabs are peeled. They are then boiled as we boil asparagus.

A most attractive cactus is the Sahuaro or Giant Cactus, a tall, stately plant. Arizona has chosen its blossom for its state flower, and the Papago Indians begin their new year when its fruits are ripe. They never intentionally destroy a Sahuaro. The largest cacti are the Tree Cacti of Mexico. These are huge plants with massive branches and large burrlike fruits, formerly used by the Indians as combs for their hair. While the Mexicans have over 500 kinds of cacti and admire this massive Tree Cactus, it is the common *Opuntia*, or prickly pear type, which appears on their national flag.

So great has become the desire for cactus gardens, that several states have had to pass laws prohibiting the removal of a single plant. While always interesting, cacti never look as beautiful in made gardens as in their own native habitats.

MARGARET M. CORNELL, Guide-lecturer

Note: In Hall 29 may be seen many kinds of cacti, their fruits and sections of wood from old stems. On the wall is a mural showing the Tree Cacti of Mexico.

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STEPHEN C. SIMMS, Director

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*Presented by*

*The James Nelson and Anna Louise Raymond Foundation  
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FIELD MUSEUM OF  
NATURAL HISTORY



Series XXVII, Number 4

October 24, 1936

FIELD MUSEUM OF NATURAL HISTORY

Roosevelt Road and Lake Michigan

CHICAGO

## BALLOONS AND THEIR USES

A balloon is a bag which, when filled with a gas lighter than air, rises from the ground. Such a bag must be made of a material through which gas and water will not pass.

There are many different kinds of balloons—rubber toy balloons, weather bureau balloons, blimps, dirigibles, large advertising balloons and free flight racing and experimental balloons. The toy balloons sold at circuses are made of rubber and filled with a gas which makes them rise into the air. Comic balloons (of animals and famous characters), made of the same kind of rubber, are usually filled with air, and do not rise far from the ground. Blimps are non-rigid airships, frequently used in training pilots for larger passenger airships.

In France, during the eighteenth century, there lived two brothers, Jacques and Joseph Montgolfier. They had observed the clouds in the sky with a great deal of interest. They believed that if they could enclose a cloud-like vapor in a very light bag it would rise into the air, so they filled a large linen bag with air and then heated it by building a straw fire under the bag. The bag rose, stayed in the air ten minutes, and came to earth one and one half miles away. Later in the same year, hydrogen was used in place of hot air, and bags were varnished with a solution of elastic gum.

The first aerial travelers were a cock, a sheep and a duck. The balloon that carried them rose to a height of fifteen hundred feet, and stayed in the air eight minutes. The passengers were uninjured, save for a broken wing suffered by the cock when the sheep kicked wildly. The same year saw the first human ascent. Jean de Rozier, a Frenchman, ascended in a captive balloon (one anchored to the ground).

As early as 1784, balloons were used for scientific purposes, the balloonists taking with them thermometers, barometers and other scientific instruments. Today, when a balloon ascends for scientific study, it carries more than a ton of scientific apparatus, including an automatic camera and complete radio equipment.

Balloons are a great aid to the weather man. He sends up small balloons to which are fastened boxes containing recording instruments and miniature parachutes. The balloons burst at a very high altitude, and the parachutes bring the instruments safely to earth. Small pilot-balloons are used to measure the winds. These balloons are usually inflated with hydrogen and their rising speed is known. They

are followed in their flight through a special kind of telescope called a "theodolite"; thus the speed and direction of the air currents can be determined. This information is important, especially to airplane pilots.

At first, spherical balloons were used for observation purposes, but they spun so that it was exceedingly difficult to make observations from them. Streamlined, stabilized balloons overcame that difficulty. During the World War balloons were used to aid in directing gun fire, especially at submarines. The balloons were towed by special balloon-carrying vessels. Sometimes, vessels floated small balloons carrying dummy men. Those balloons deceived the enemy, for they appeared to be real observation balloons at a great height.

The process of spreading rubber on balloon cloth was studied as early as 1910. Since then many inventions and improvements have made balloon construction a very scientific and complex industry. Today, every square foot of material used in a balloon passes through a rubberizing machine as many as thirty times, each time receiving a very thin coat of rubber. Not one stitch is used in putting together more than two acres of cloth, which is cut into thousands of pieces. Each piece is carefully cemented to its neighbor with rubber tape on both sides of the seam, so that in the finished bag the seams are stronger than the neighboring fabric, which is woven of long, strong cotton fibers. More than three hundred gallons of the purest rubber cement and several miles of cloth are used in the construction of one large balloon, such as the *Explorer II*, used in studying the sun's rays and the temperature and winds of the upper atmosphere. Its gondola weighs four hundred and fifty pounds, is made of a material very much lighter than aluminum, and is little more than one quarter of an inch in thickness.

Today, helium is all important for inflating balloons. It is used by the *Hindenburg*, the largest balloon of the present time. The *Hindenburg* makes regular trips across the Atlantic ocean, carrying both passengers and freight.

VELMA D. WHIPPLE, Guide-lecturer

Note: Hall 36, Case No. 18, contains a model of a spherical balloon, and in Hall 28 is shown a rubber tree and a cotton plant.

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STEPHEN C. SIMMS, Director

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*Presented by*

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Series XXVII, Number 5

October 31, 1936

FIELD MUSEUM OF NATURAL HISTORY

Roosevelt Road and Lake Michigan

CHICAGO

## THE KOALA OR REAL TEDDY BEAR

Should you ask a native Australian which of the pouched animals of his famous land is his favorite, he doubtless would smile and say, "the Koala." Every one there loves the roly-poly inhabitants of the eucalyptus trees, just as small children in our own land like their toy Teddy Bears, which are made to look like the Koalas.

The real Koala has the same small rounded body, short arms and legs held akimbo, bright, wondering eyes and queer black nose, but it is not a bear. Australia has no members of that family. The Koala belongs to the "marsupials," the group to which belong the kangaroos wombats, phalangers and Tasmanian Devils. Many of them have outside pockets for the feeding and protection of the young.

When the "Joey" or baby Koala is born, it is less than an inch long and has no hair on its body. Using its long, strong, pointed claws it works its way up through its mother's fur and into the pouch where it stays for several months. During that time, it grows a coat of short, thick, woolly fur.

After leaving the pouch, the youngster spends much of its time lying in its mother's arms, much as a human baby does, except that it has to hang on tightly. The mother cannot clasp it as her own arms are needed for climbing about in the tree and pulling down the tender leaf tips on which she feeds. Should the baby become alarmed, it quickly swings about onto its mother's back and up the tree they go far away from danger. Koalas are fond of sitting in the bare limbs at the very tops of the trees, especially the old males. Sometimes, the forests ring with the hoarse calls of the animals, but usually they are silent.

While the eucalyptus trees are the homes of the Koalas, they do come down and walk about on the ground. In descending the trees, they come down backward never glancing around once to see where they are going. On the ground they are rather awkward due to the peculiar formation of their fingers and toes. Each hand has five fingers. The first two are together, then comes a space, then three more fingers held close. Thus we might say the Koala has two thumbs on each hand as the first two fingers stand out at an angle as does our own thumb. On each foot are four toes arranged in groups of twos with some space between the groups. This arrangement makes it possible for the animals to clasp a limb or tree trunk with great security. Like

man and the apes, Koalas can hold their arms above their heads or out from the body at any angle needed to reach some desired food.

Their favorite food is the dainty, oily leaf tip of the Manna Gum, a kind of eucalyptus tree with long drooping leaves having quite a bit of sugar in them. As far as known, Koalas will eat very few kinds of eucalyptus leaves. That is the reason that it is almost impossible to keep them alive away from their homeland. Occasionally, a Koala has been seen to eat bark and sphagnum moss. It is thought that these are used as we use medicine.

In order to secure all the fat, sugar and meaty substance needed to keep them healthy, the Koalas take into their stomachs great quantities of the leaf tips. To care for this mass, they have been provided with the most highly developed appendix known. We have a very small appendix, and yet, what trouble it can cause. The Koala appendix is from six to eight feet long and in constant use.

While the Koalas eat a tremendous amount of food, they do not drink. In fact, the name "Koala," given to these attractive little marsupials by the early natives of Australia, means "Nothing to drink," or "I do not drink." The moisture needed must be found in the juicy leaf tips. As they gather these during the night, perhaps the dew provides some of it. People who have been fortunate enough to have a pet Koala are always amused to see it when given water. It tries to chew it.

Koalas make delightful pets following their owners about just as puppies do. When hurt they cry like babies and want to be taken up and fondled. Due to the fact that so few are left from the millions that formerly lived in Australia, preserves have been established where they are protected. It is now illegal for a person to secure one without a permit from the government. Thus Australia hopes to preserve for future ages this most interesting, harmless and valuable marsupial.

MARGARET M. CORNELL, Guide-lecturer

Note: In Hall 15 is a case showing the marsupials. There you may see a mother Koala with her baby on her back.

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STEPHEN C. SIMMS, Director

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FIELD MUSEUM OF  
NATURAL HISTORY



Series XXVII, Number 6  
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FIELD MUSEUM OF NATURAL HISTORY

Roosevelt Road and Lake Michigan

CHICAGO

## LAND OF COPPER AND CARIBOU

Alaska is a land of surprising combinations. It has snow-covered, barren plains, and miles of forest lands; temperatures like ours in summer, and often seventy degrees below zero in winter. Some cities in Alaska have telephones, radios, airplane service, telegraph communication, automobiles and good roads. There are also towns in the interior, consisting of only a general store and a few houses—and everyone living within fifty or sixty miles, who trades at the store, is considered an inhabitant of the town.

There are many animals in Alaska, but the most important is the caribou, which is just another name for the American wild reindeer. Because the Alaskan natives in recent years have been dependent upon the caribou for food and clothing, and because the caribou was fast disappearing, the United States government stepped in, imported reindeer from Siberia, and made laws to protect both the reindeer and caribou from hunters.

Other important animals are the moose, also used for food and clothing; the beaver, fox, wolverine, muskrat, mink, otter and seal, valuable for their furs; the "incredible numbers of fish," especially salmon, herring and cod; and the mosquito, important because it is such a pest in summer.

The Eskimo has many characteristic foods—all flavored with a strong oil. One of the favorite dishes is "Eskimo ice cream," made by extracting the marrow from caribou bones and mixing it with a great deal of fat and a few large native blueberries.

The Alaskan Eskimo builds his igloo out of willows, moss and mud. He never uses ice and snow. Many of the igloos have stoves and glass windows. The Eskimos spend the summers hunting, while the white people who live there work in their gardens and raise huge turnips, cucumbers, potatoes, cabbage (an especially important crop), lettuce, and even spinach. They also grow gorgeous flowers, even north of the Arctic Circle, and near Fairbanks many acres of wheat are grown.

If you were to take a trip in the winter to a small town in the interior, you would probably travel the last stretch by dog sled. And you would be uncomfortable if you did not wear the Alaskan costume known as a "parka." This loose-fitting garment, which is slipped over the head and comes down to the knees, is usually made of caribou skin, trimmed around the hood with wolverine fur, which does not become frosted



when breathed upon, even in the coldest weather. A girl's parka is often trimmed around the bottom with a patchwork of different-colored skins. Then you would need mooseskin moccasins or boots of caribou skin with the hair inside and sealskin soles. Not only would these keep your feet warm, but you could walk all day in the dry winter snow of the far north without getting your feet wet.

Alaska is famous for its minerals. Copper exceeds in value the output of gold, tin, lead, platinum, sulphur and graphite. Most of the copper is mined in two districts—the Copper River Valley and the Kasaan Peninsula. It is mined from open pits or from shafts tunneled into the sides of the mountains. Alaska also produces considerable coal and petroleum.

One of the strangest and most thrilling experiences you could have in Alaska would be a visit to "The Valley of Ten Thousand Smokes." This valley is really a gigantic safety valve for Mount Katmai, which in 1912 blew up, burying the town of Kodiak, one hundred miles away, beneath a foot of ash. The particles of this ash are so sharp they are used as a base for "Old Dutch Cleanser" and other scouring agents. Now, the excess steam comes up through thousands of vents, or holes in the valley floor. Over these vents food may be cooked, and the whole valley floor is constantly warm—too warm to sleep on.

How Cape Nome received its name is a story worthy of a land of strange happenings. When the shore line of Seward Peninsula was explored that cape had no name, so a "? name" was placed on the chart. In a series of mistakes in copying the chart the "? name" was changed first to Cape Name, and finally to Cape Nome.

From May until August boys and girls living north of the Arctic Circle never beg to be allowed to "stay up until it is dark," but go to bed every night knowing that even at midnight it will be light outside.

VELMA D. WHIPPLE, Guide-lecturer

Note: In Hall 10 are Alaskan Indian and Eskimo utensils, sleds, boats, clothing and toys, and in Hall 16 is the moose, caribou and musk ox. In Hall 37, Case No. 10, is some Alaskan gold, and in Case No. 23, some copper.

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Series XXVII, Number 7

November 14, 1936

FIELD MUSEUM OF NATURAL HISTORY

Roosevelt Road and Lake Michigan

CHICAGO

## THE STORY OF COMMON SALT

One of the most valuable and useful of minerals is Common Salt. No one knows when man first began its use.

If we look at a list of the articles carried over the ancient caravan routes, we find salt listed with incense and spices. Those were the days when offerings were made to the gods, and salt was considered precious enough to be offered with gifts of cereals. In some parts of the Orient, it still has a sacred use. The Arabs use an old expression, "To eat salt" to mean there is a sacred bond of friendship between two persons, while in Persia, "Untrue to salt" means a person has been ungrateful.

The Hopis and Zunis of our own country also have a sacred idea regarding salt. The Hopis have several salt deities. Hurung Wuhti, "The Woman of Hard Substances," is said to have been the sister of the rain gods. After being driven from heaven she was made Goddess of Salt. The Zunis' "Salt Mother" is "Mawe," the spirit of their sacred salt lake. At certain seasons, ceremonies are held there. Many wars have been waged with neighboring tribes to keep possession of this lake. Its salt is the finest to be found in the southwest, and has often been found in the ruins of cliff dwellings.

Salt has been used to mark social positions. Stories of feudal days refer to great dinners of the nobles, and mention certain people as "sitting below the salt." Those of high positions sat between the salt and the lord or baron giving the dinner, while those of lower positions were placed below the dish of salt.

One of the oldest of Italian roads is the Via Salaria—the salt road. Over it were carried the great quantities of salt for the Roman soldiers. Each man was given a certain allowance of salt. Later, the government gave him the money with which to purchase the salt needed. This money was called "Salarium." Our word "salary" comes from it.

In some places salt takes the place of money, as in Tibet, Mongolia and Abyssinia. It is often highly taxed, in some lands so much so that only the wealthy can buy it. The poor must go without. China receives a large revenue each year from its salt taxes.

Many kinds of animals and most peoples should have salt to keep their bodies healthy. Animals in the wilds visit salt springs or "salt licks" where the rocks contain salt. Man secures his salt, or "sodium chloride" as the science books call it, from several sources.

If he lives near the sea, he may evaporate the sea water, using the sun's heat or artificial heat. Inland peoples may obtain their salt from lakes and seas having no outlets, such as the Great Salt Lake in Utah, or the Dead Sea in western Asia, or it may come from brine wells and deep mines. Some of the world's finest salts come from mines. The most famous salt mine is at Wieliczka, Poland. It is almost an underground city with its 65 miles of galleries and more than 30 miles of railroad.

Salt in the mineral form is known as "rock salt." Occasionally, it is found in a massive, fibrous form, called "hair salt," but usually it is in cube-shaped crystals. When tinted with red, brown or yellow, it has been colored by other kinds of minerals or vegetable matters seeping in during crystal growth. When pure, rock salt is colorless and transparent. It has several interesting scientific uses. Among them is its use for quickly transmitting heat waves. Especially large crystals are sometimes used in studying the infra-red rays from the sun. The United States and Galicia are said to produce the finest of rock salts.

In past ages, lagoons and other bodies of sea water deposited their salts in various localities. Sometimes, it formed layers hundreds of feet thick; sometimes, it worked its way into crevices. Today, water flowing naturally through such areas dissolves bits of the salt and in time it reaches the surface, or is pumped up into pans and evaporated. The method of evaporation determines the purity, size of grains, and the different uses to which the salt may be put. We are most familiar with the fine "table salt." The coarser salts are of tremendous value to the makers of chemicals, glass, glazes, enamels and soaps, as well as to the fishermen, meat-packers and dairymen.

The United States stands high in the production of salt, for it prepares more for the markets than any other land. The salt wells of Michigan are especially noted.

MARGARET M. CORNELL, Guide-lecturer

Note: At the west end of Hall 37 may be seen a lump of rock salt from Kansas and one from Germany; also, shrimps, liquid brine, coarse and fine salt from Great Salt Lake.

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STEPHEN C. SIMMS, Director

# MUSEUM STORIES FOR CHILDREN

*Presented by*

*The James Nelson and Anna Louise Raymond Foundation  
for Public School and Children's Lectures*



Series XXVII, Number 8  
November 21, 1936

FIELD MUSEUM OF NATURAL HISTORY

Roosevelt Road and Lake Michigan

CHICAGO

FIELD MUSEUM OF  
NATURAL HISTORY



## ARMOR THROUGH THE AGES

The shield completed, vast and strong, he forged  
A breastplate, dazzling bright as flame of fire:  
And next a weighty helmet for his head,  
Rich, fairly wrought, with crest of gold above:  
Then last, well-fitting greaves of pliant tin.

—*The Iliad*

Thus did the poet Homer describe the armor of the Greek hero Achilles, and thus do most people think of armor today. But the story of armor dates back to very early times and to a very different kind of armor.

Prehistoric man first warded off the thrust of an enemy by holding a piece of wood or the skin of an animal before him. Then, as the stone, bone and wood missiles became sharper and more vicious, he lashed wood with hide and wove reeds into a shield and a breastplate which was tied under the arms or hung from the neck. Thus began the "cuirass" the most important part of any suit of armor. Next came the helmet and thigh guards, and later still, the greaves for the legs, the gauntlets for the wrists, and the visors.

Sometimes, complete outfits were made of animal hide. The ancient Chinese used hardened rhinoceros hide. Such armor was carefully made, either of entire skins or of scale-shaped pieces attached to an undergarment. This type of armor has always been popular and was made in later times from bronze and iron by the Spanish, Japanese, Tibetans and many other peoples. The most curious of ancient armor was the Chinese paper armor made from sheets of paper laid in folds. The strongest arrows could not pierce it, the records say.

As man's personal clothing changed in style, it became necessary to change the armor that covered it. From simple straight lines, the harness became shaped to the body and flexible. The armorer was a mighty man in those days. Upon his work depended the success or defeat of his patron, and all kinds of materials were used to make the armor comfortable as well as beautiful. Cottons, linens, silks, velvets, delicate tissues, gold and silver—all were used. Egyptian monuments show armor made of thickly padded cloth. The Romans used a similar kind under their heavier armor in later days, and in recent times, the Indians of Mexico and Central America have girded themselves in padded cotton for warfare.

Decoration of armor was an art in itself. Delicate etchings, raised figures in gold, broad sweeps of conventional designs or national

emblems are found on some of the great harnesses of the past. Others carry pictures of the wearer's favorite animals or magic symbols to ward off danger or disease. Helmets frequently assumed grotesque shapes to arouse a feeling of fear in an enemy, or they towered high with plumes nodding in the breeze. Cuirasses were often heavily lacquered with a brilliant red to add more terror. Great painters like Leonardo, Titian and Holbein made designs for armor.

As the knowledge of metals spread, first bronze, and then iron was combined with hide, or used alone in plates or sheets lashed to each other with thongs of hide or metal links. This style was followed by the delicate chain and link mail where the iron was riveted or welded together. The early Crusaders were completely clothed in chain armor; the later ones in sheet harness, marvelously shaped and fitted tightly to all parts of the body, like the suit worn by Joan of Arc.

Horses too were covered with armor. The earliest records of horse harness show suits of cloth or well-tanned leather. By the 13th century, they were outfitted with blanket-like coats of chain mail, and later, they too went into battle clothed with sheet armor of beautiful workmanship. Their visors often carried long, sharp spear points. The weight of armor of horse and rider was so great that neither could arise unaided after a fall.

Then came gunpowder and firearms. Bit by bit the heavy armor was discarded. It was useless against shots from guns and revolvers, and except for use in jousting tournaments was no longer made for Europeans. In other lands, however, it still held an important place for many years, especially where throwing-weapons were used. Today, it is found useful in the Caucasus, in Tibet, among the Moros and on some of the South Sea Islands.

MARGARET M. CORNELL, Guide-lecturer

Note: Field Museum has several interesting exhibits of armor. In Hall 33, Cases 24, 25, 26 and 29 show Persian, Chinese and Tibetan armor; Hall 10, Cases 31 and 37, show Indian and Eskimo armor; Hall H, Case 11, Moro armor of bronze and carabao plates; Hall F, Case 2, contains complete suits of woven coconut fiber with helmets of skins of blowfish, and Hall D, Case 30, has a Cameroon cuirass of crocodile skin and helmet of monkey skin.

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STEPHEN C. SIMMS, Director

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*Presented by*

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FIELD MUSEUM OF  
NATURAL HISTORY



Series XXVII, Number 9  
November 28, 1936

FIELD MUSEUM OF NATURAL HISTORY

Roosevelt Road and Lake Michigan

CHICAGO

## GOURDS AND PUMPKINS AND THEIR USES

Children of our country often become acquainted with pumpkins and their relatives in the fall of the year—particularly during October and November. October brings Hallowe'en, and since the pumpkin is a typical fruit of that time of the year it is used in all kinds of Hallowe'en decorations. Many boys and girls think half the fun of Hallowe'en is to have a real pumpkin in the window. Then comes Thanksgiving with its baked squashes and pumpkin pies, and gourds heaped high with autumn fruits.

Early settlers on our eastern shores were surprised to see that the Indians raised rows of corn and beans with pumpkins and squashes between. The Indians believed that these three vegetables were guarded by three sister spirits, and that the plants would not grow well alone. The pumpkins and squashes were prepared for food by baking in ashes—shell, seeds and all; by splitting, cleaning and boiling in water; or by cutting them into thin strips to be dried for winter food. The Indians also boiled squash flowers with meat to add to the flavor.

The word "squash" comes from an Algonquian word meaning "eaten green," while the word "pumpkin" comes from an old Greek word meaning "cooked by the sun." When the shell of a gourd, pumpkin or squash is made into a container it is sometimes called a "calabash." This should not be confused with the true calabash which grows on a South American tree belonging to the Trumpet Flower family. The true calabash is in no way related to the pumpkin.

Gourds are first cousins of the pumpkins. The Indians and early settlers raised them for rattles, water bottles, dippers, cups and other household utensils. Today we find many surprising and interesting uses for gourds. In China they serve as winter homes for pet crickets, which are cherished either because they sing or because they are good fighters. Some of the cricket gourds are decorated, and all have elaborately carved bone, ivory, wood or jade covers. The designs on the covers may be of flowers, dragons, lions or other animals.

In South America gourds, pumpkins and squashes were cultivated long before white men came to America. In very old Indian graves in Peru have been found vases shaped like squashes and pumpkins, and gourd containers holding peanuts. Gourds are still used in South America. Small ones are often used as containers for poison used in trying suspects of a crime. Guilt or innocence is determined by the

effect of the poison on the suspect. The South American Indians who use the blow gun and poison darts keep the poison in small gourds attached to their quiver cases, while small oval gourds are highly decorated and used as cups for a popular South American drink called "yerba maté," which really means "plant for the gourd."

Gourds are frequently used in the making of musical instruments. This is especially true in Africa where the natives love music and rhythm. They have gourd drums, rattles of small gourds fastened around the waist of a dancer, stringed musical instruments made of gourds to which long handles are attached, musical bows with gourd resonators, and most important, the marimba. This instrument is really a xylophone with thin pieces of wood, often elaborately carved at the ends, suspended by cords over a series of gourds of different sizes. The gourds help to make the music louder. Some of the marimbas are so large it takes two men to play them.

In certain parts of Africa water pipes are made of horn with small gourds for holding the tobacco; in other parts certain tribes cover their long necked gourds with beautiful bead work. Gourds are raised by most primitive peoples. The shapes can be made to suit any use by binding with string or placing weights on the growing gourds. Thus Borneo has bottle-shaped gourds for the Pipes of Pan; Melanesia, tiny gourds for lime, used in betel-nut chewing; and the Philippines, large gourds for storing rice and other cereals. These gourds may be plain, or the surfaces may be carved, burned with delicate strokes, painted or highly polished. Mexicans are noted for their brightly colored gourds.

Though the children of foreign countries may not know the joys of jack-o'-lanterns and pumpkin pies, they do know those very important relatives, the gourds.

VELMA D. WHIPPLE, Guide-lecturer

Note: In Hall 3 you will find dried squash strips, and a summer village showing pumpkins and squashes; Hall D, Case 36, shows bead-covered gourds; Hall E, Case 27, gourd toys; Hall G, Borneo Pipes of Pan; Hall H, rice containers; Hall 32, cricket gourds. In Hall 28 is a yerba maté cup; Hall 29, Case 832, contains a true calabash, and Case 830, pumpkins, gourds and squashes.

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